specific applications and structures for the present invention are illustrated in the following examples.

EXAMPLES

[0125] Group I—Active Transport Examples

Example 1

[0126] A fluid removal system for use in collecting, transporting and removing fluid was formed from a flat, unstructured film adhered to a substrate. A potential was applied to enhance liquid movement across the film, with a cover layer applied over the flat film material. As seen in **FIGS. 7***a* and **7***b*, the flat unstructured film was formed from a flat polyethylene film **150**, adhered to a substrate **152** with a double-sided pressure sensitive adhesive and covered by a linoleum cap layer **154** (the cap layer **154** was not adhered to the film **150**, just laid over it). A potential was provided by drawing a vacuum (six inches mercury) through a vacuum system **156** which included apertures **158**, conduits **160**, and a collection reservoir **162** and a vacuum pump **164**. The vacuum allowed for continuous desiccation of the area under the film **150** to aid in collecting fluids spills thereon. The area tested was approximately 18 inches×36 inches, with ten drains or apertures **158** aligned in two rows, and spaced approximately **2** inches apart in each row. Each aperture **158** was 0.25 inch in diameter, while the conduits **160** had an ID of 0.375 inch. The distance between apertures and the size of the apertures can be maximized, depending on the strength of the vacuum potential applied.

[0127] The system of **FIGS. 7***a* and **7***b* was tested by aligning the film **150** horizontally, and then by spilling 200 milliliters of water bearing red food coloring thereon. The system (substrate **152**, film **150** and cap layer **154**) was intended to simulate a flooring assembly on an airplane, and was tipped to one side for a short time period (such as side **154***a*) to simulate its orientation during landing or take-off of the airplane. There were no holes in the linoleum cap layer **154**, so water disposed thereon went under the linoleum at its edges. In 10 minutes, 150 ml. of the water was collected in the liquid reservoir **162** (a 75% fluid removal and collection rate).

Example 2

[0128] A fluid removal system for use in collecting, transporting and removing fluid was formed from a fluid transport tape adhered to a substrate. This system was evaluated for use aerospace applications, and specifically for installation in airliner galley and lavatory applications (e.g., subfloors). The test arrangement of Example 2 was identical with that of Example 1 except for the substitution of a fluid control film for the flat polyethylene film **150**. The fluid transport tape had a structured surface, and was formed of the material and configuration of the film **138** shown in **FIG. 2***i*. A potential was applied across the fluid transport tape to enhance liquid movement, and a suitable cover was placed over the microstructured surface. The fluid transport tape was adhered by pressure sensitive adhesive to the passenger level flooring substrate. The adhesive comprised 65:35 2-ethylhexylacrylate (EHA): isobornylacrylate (IBOA), applied in a layer of about 2 mil. thickness. The suitable cover was again a cap layer of linoleum (unadhered to the fluid transport tape). Floor drains or apertures were installed and a vacuum (six inches mercury) applied. The vacuum allows for continuous desiccation of the area under the linoleum or carpet, and aids in collecting fluids spills. This system, as configured and tested, is illustrated in **FIGS. 8***a* and **8***b*.

[0129] Fluid transport tape **170** was adhered to the flooring substrate **172** by the pressure sensitive adhesive, and covered by the cover **174**. A liquid removal system **176** had apertures **178** in the fluid transport tape **170** and the substrate **172**, fluidly connected to conduits **180**, which in turn were connected to a liquid reservoir **182** and vacuum pump **184**. The structured surface of the tape **170** included a plurality of grooves or channels **175** (**FIG. 8***b*), wherein at least some of the channels **175** were in fluid communication with the apertures **178**.

[0130] The Example 2 system was tested for fluid removal by aligning it horizontally and spilling 200 milliliters of red water on the system. The system was again briefly tipped, such as toward side **174***a*, and in 10 minutes, 170 ml. of the water was collected in the liquid reservoir **182** (an 85% removal and collection rate).

Example 3

[0131] The fluid removal system illustrated in **FIGS. 8***a* and **8***b* was modified by applying absorbent strips on top of the microstructured film and perpendicular to the channels. The system was otherwise as shown in **FIG. 8***a*, and as modified in **FIG. 9**. Absorbent strips **185** were placed on top of the structured surface of the microstructured film **170** (under the cap layer **174**) and perpendicular to the channels **175** thereon. The absorbent strips **185** connected the apertures **178** and allowed liquid to flow to the apertures from adjacent channels **175**. Each strip was approximately 0.5 inch by 16 inches, and the material used in this example to connect the apertures was a paper cloth available from Kimberly-Clark Corporation, Irving, Tex., under the name WYPALL®. However, each strip could be formed from another paper product, cloth, a porous filter, sponge, spun bound, nonwoven or other similar material (i.e., any material that has sufficiently small pore size to induce capillary wicking of the liquid).

[0132] The system of **FIG. 9** was tested for fluid removal by aligning it horizontally, spilling 170 milliliters of red water on the system and briefly tipping it. In 10 minutes, 155 ml. of water was collected in the liquid reservoir **182** (a 91% removal and collection rate).

Example 4

[0133] A fluid removal system set up such as shown in **FIG. 8***a* was again tested, except that post-production embossed cross-channels were formed in the structured surface of the fluid transport tape. The cross-channels were formed using the edge of a heated metal plate of 0.1875 inch thickness (resulting in cross-channels approximately 0.125 inch wide), although a heated wire, hot knife or some other means for melting or embossing a cross-channel **187** (**FIG. 10**) in the structured surface **170** would suffice. The cross-channels **187** were formed after the fluid transport tape **170** was adhered to the substrate **172**, and the cross-channels **187** extended perpendicular to the liquid transport film channels **175**, as seen in **FIG. 10**. The purpose of the cross-channels